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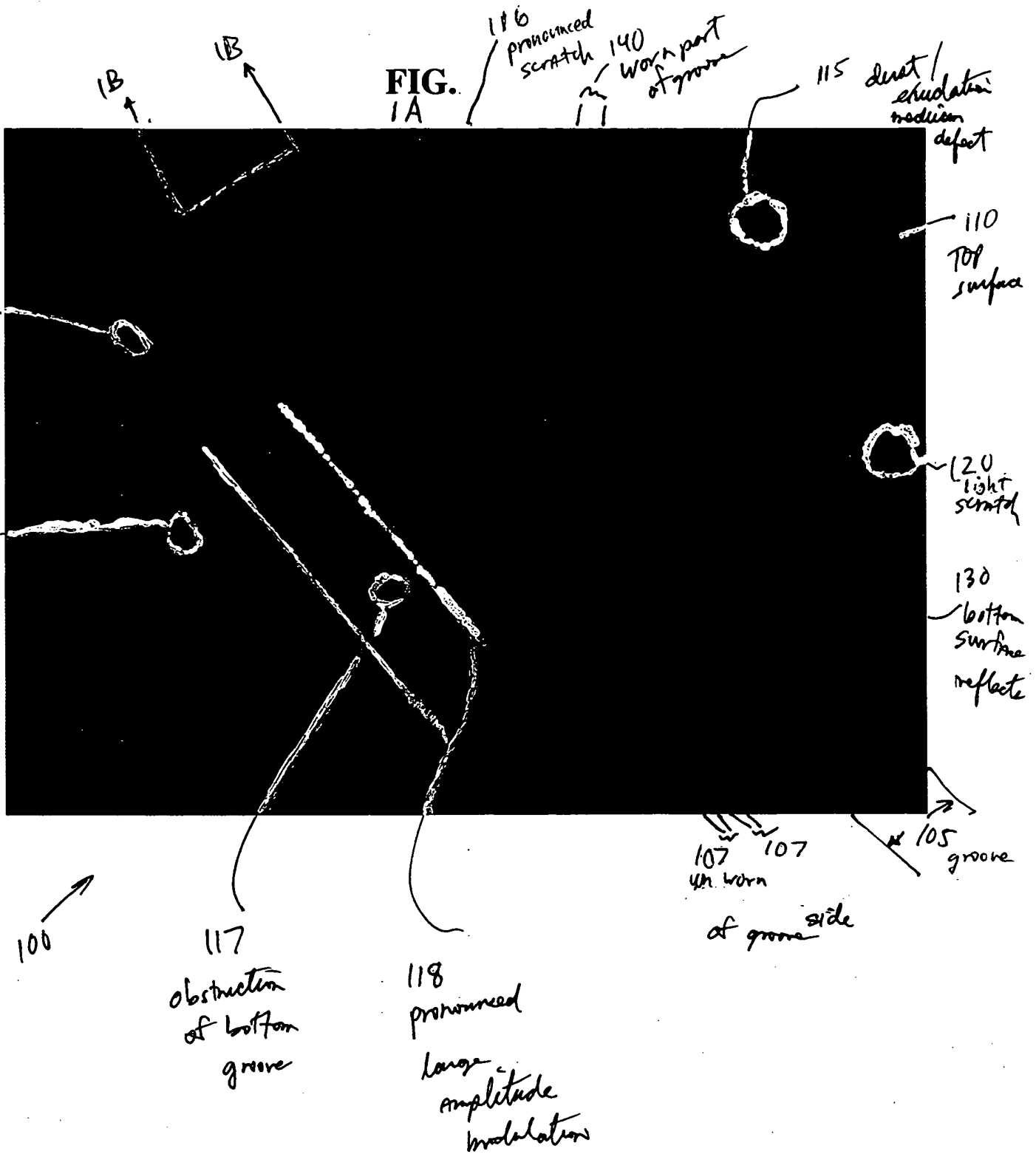


FIG. 1B

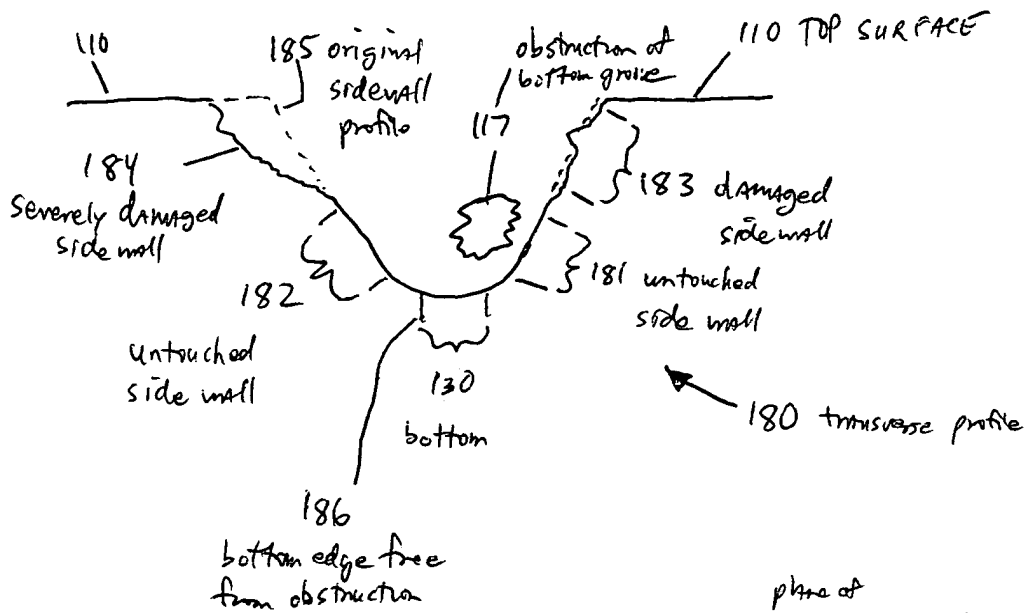
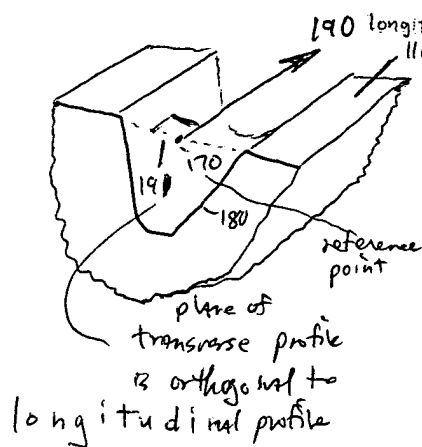


FIG. 1C



plane of transverse profile is substantially orthogonal to the longitudinal profile

FIG. 1D

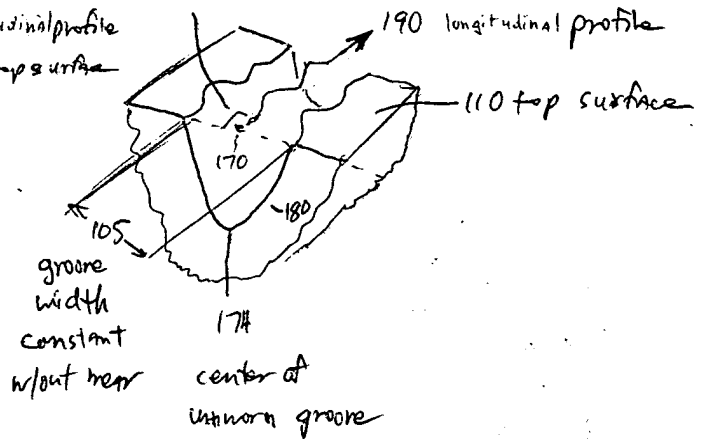


FIG. 1E

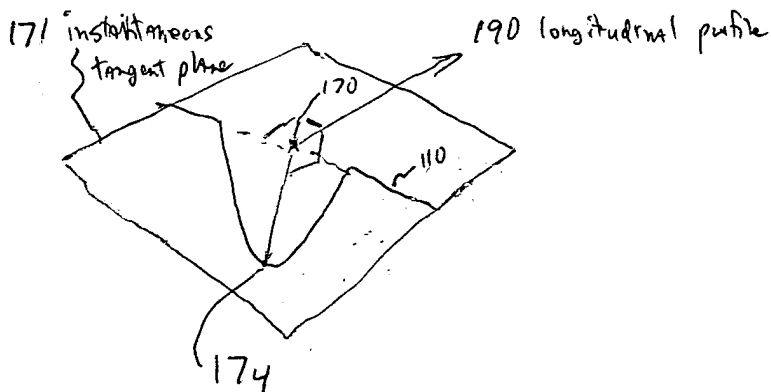


FIG. 2A

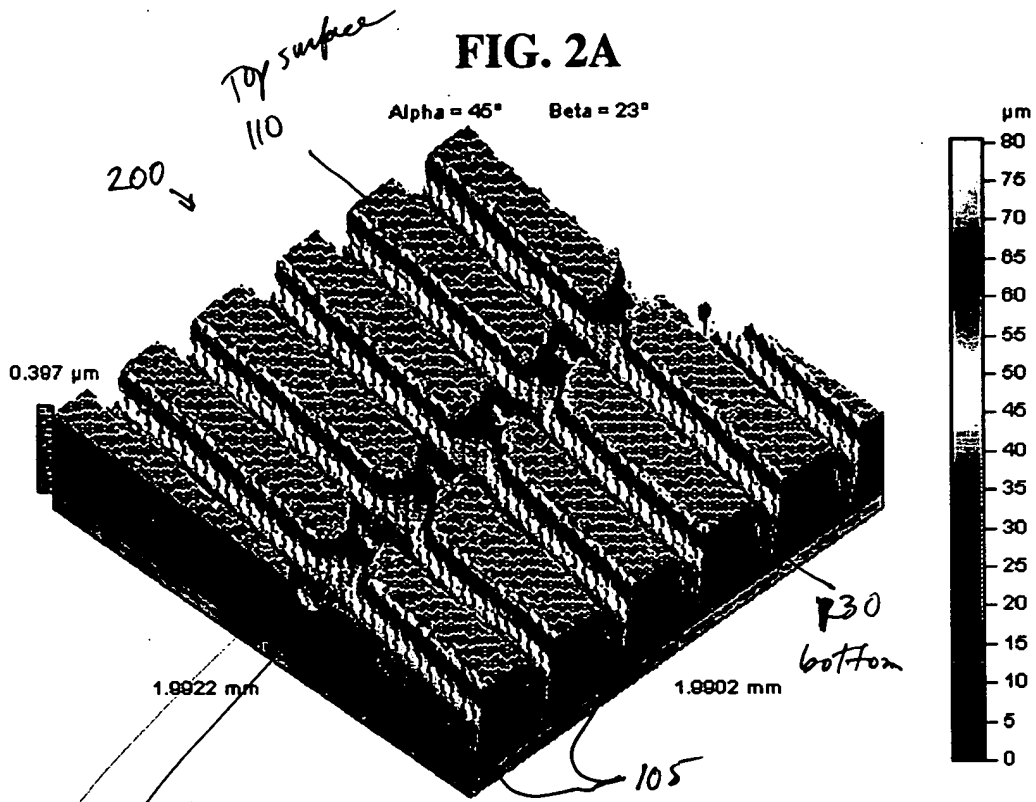


FIG. 2B

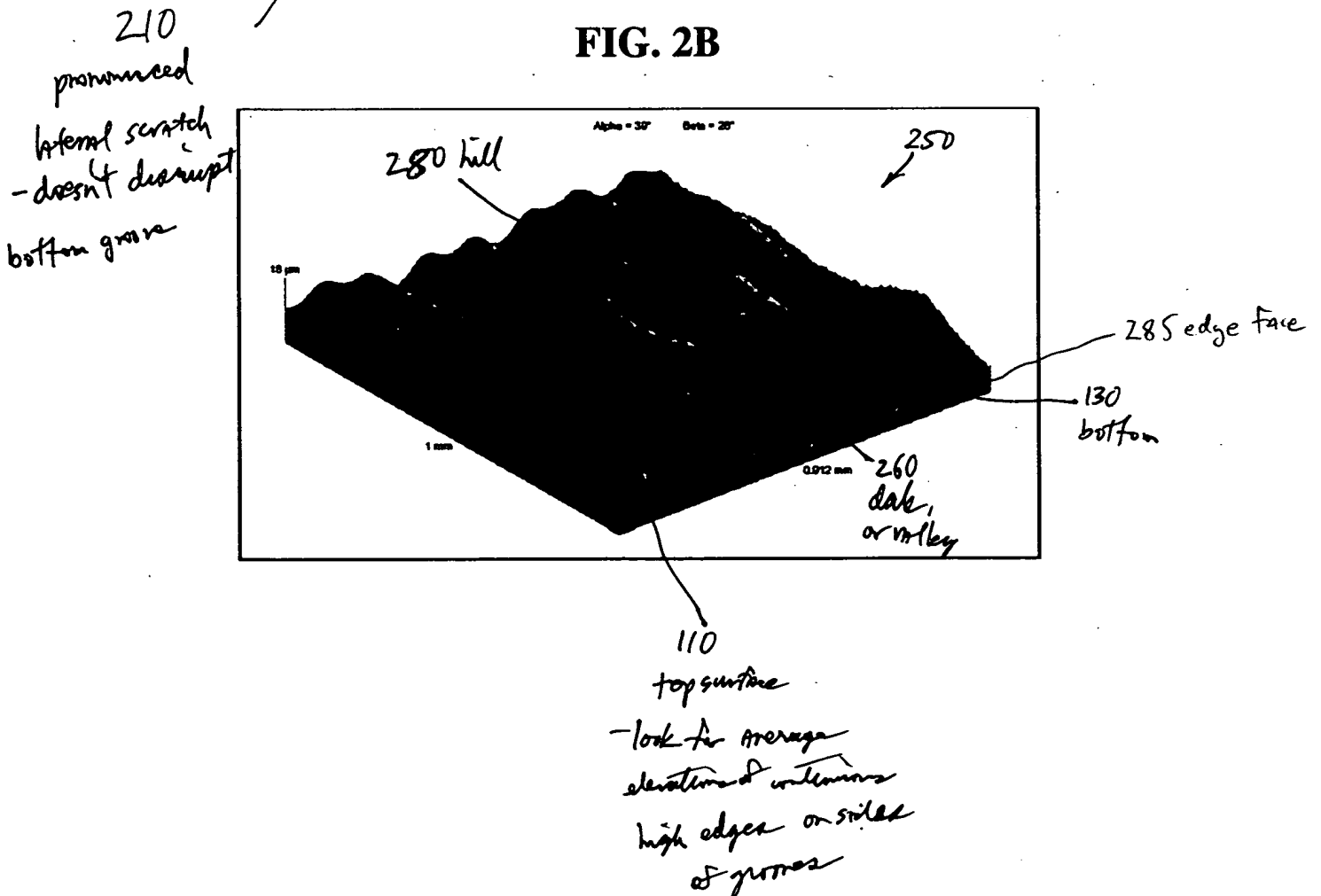
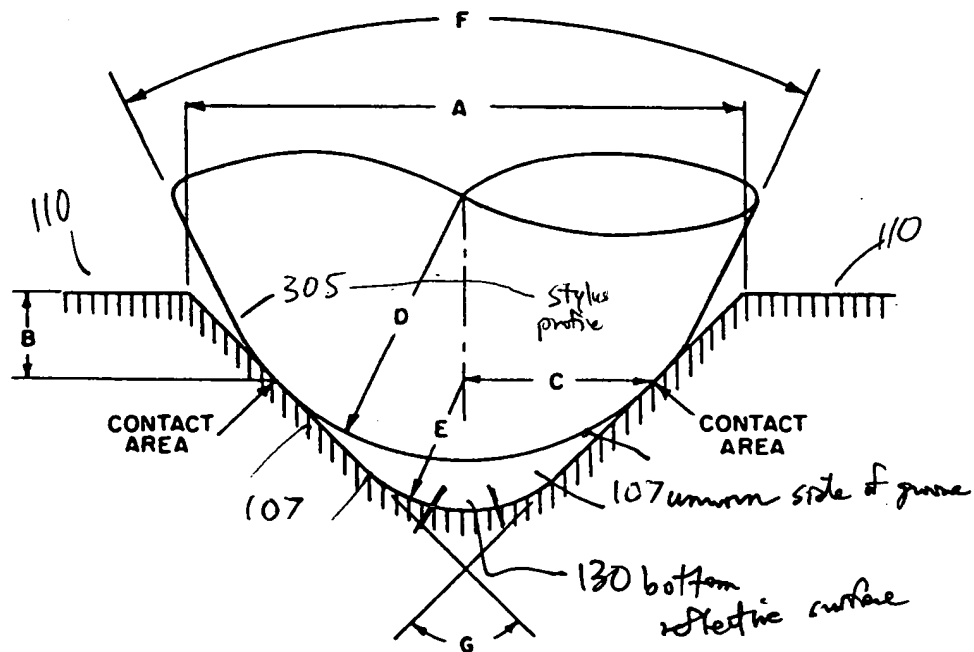


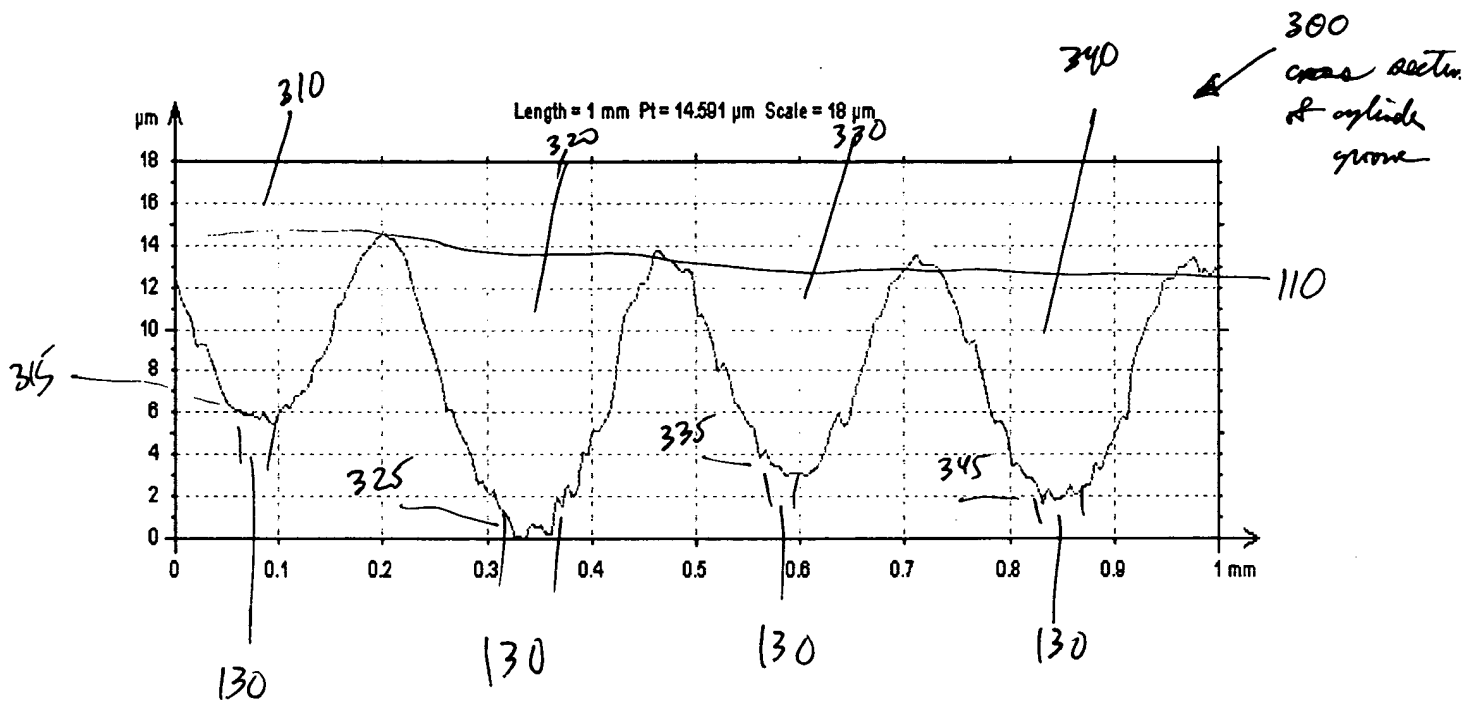
FIG. 3A



Sectional view of a stylus in a groove. The dimensions for coarse groove, fine groove, and ultra fine groove are as follows:

<i>Dimension</i>	<i>Coarse</i>	<i>Fine</i>	<i>Ultra Fine</i>
A	.006	.0027	.0010
B	.0008	.0004	.0004
C	.0019	.0007	.00017
D	.0027	.001	.00025
E	.0023	.00027	.00015
F	45°	45°	45°
G	90°	90°	90°

FIG. 3B



470.
vertical
focus
movement

FIG. 4

400



450
monitor

460
controller

440
computer

430
precision
X-Y stage

420
metrological
sample

410
optical
system

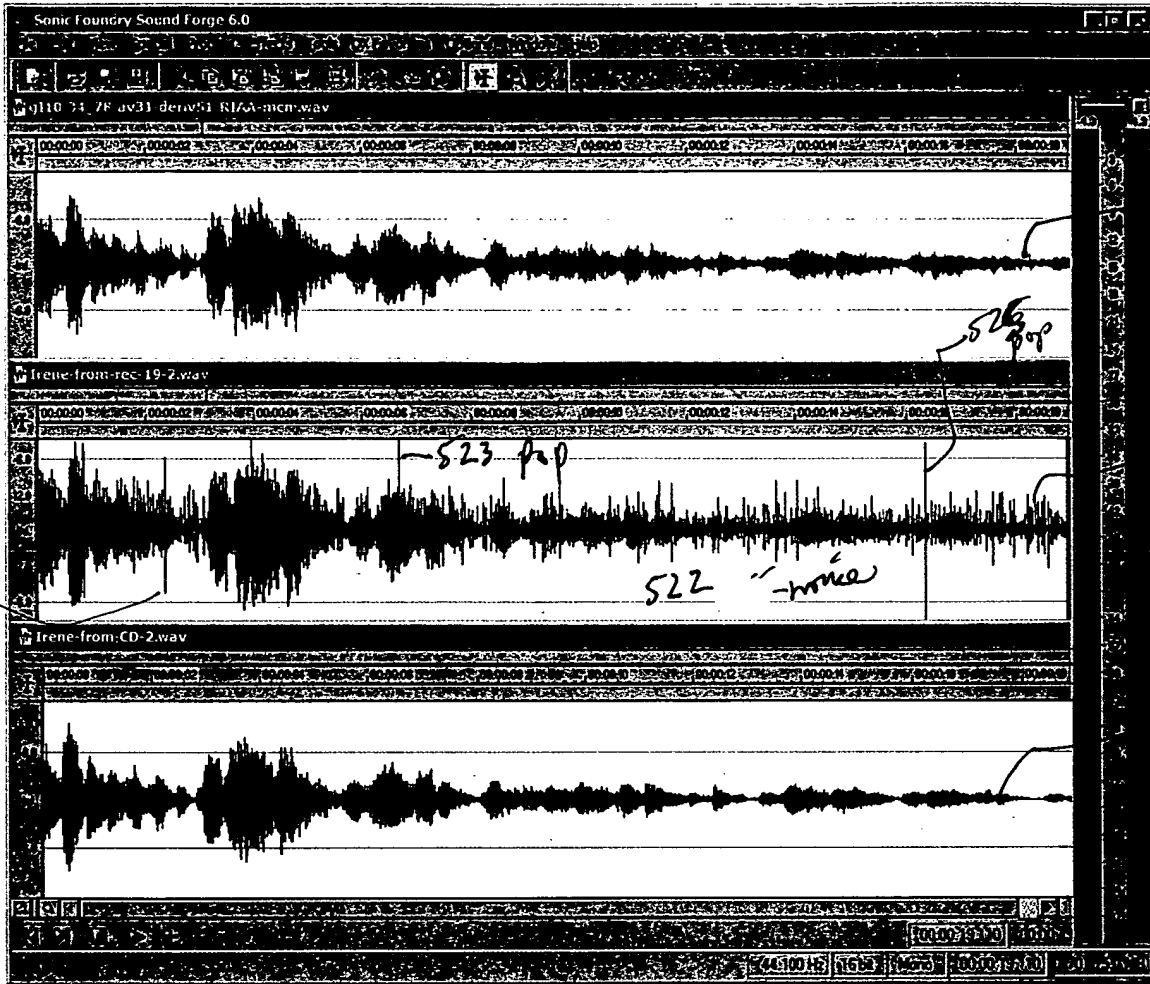
FIG. 5A, B, C

500

FIG. 5A

FIG. 5B
525
pop

FIG. 5C



510
optical
reconstruction

520
stylus
playback

530
commercially
released
remastered
CD from
tapes

FIG. 6A, B, C

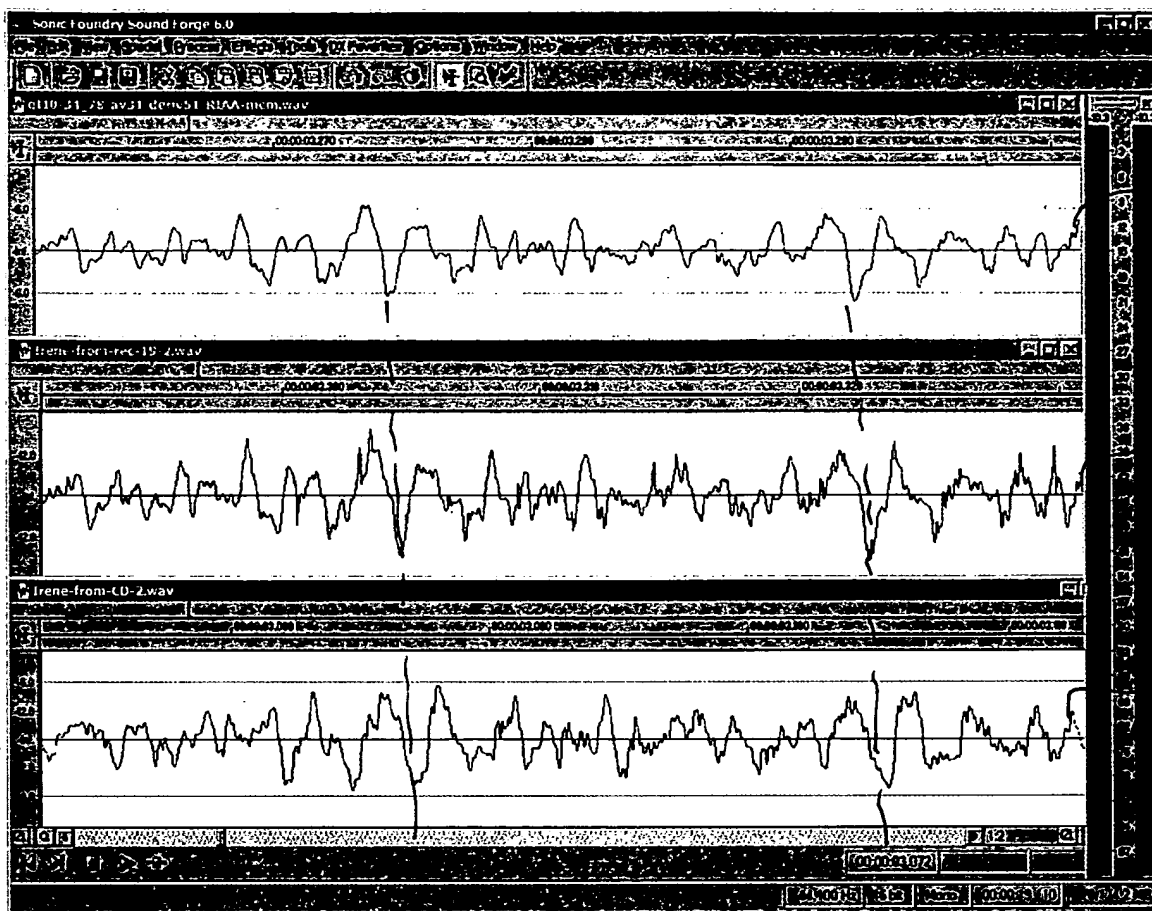


FIG. 6D

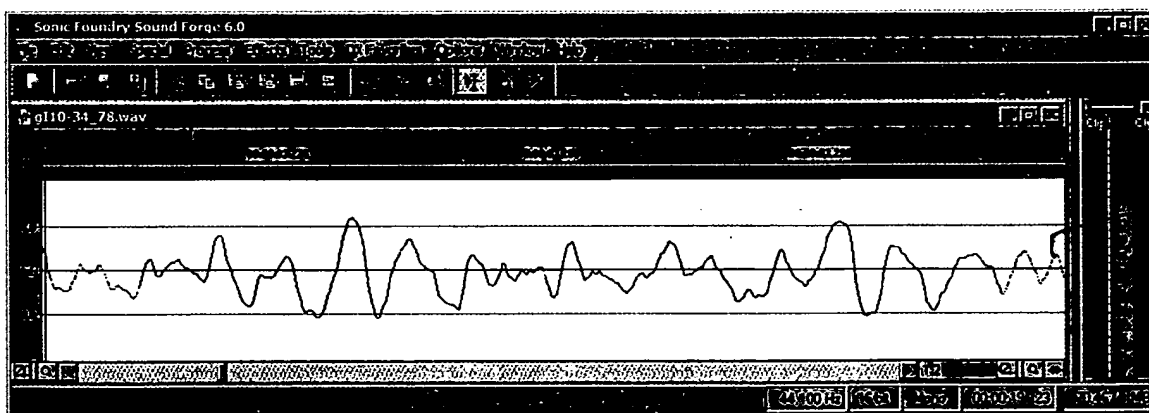


FIG. 7A, B, C

200

FIG 7A

FIG 7B

FIG 7C



710
optical
reconstruction

720
stylus player

730
commercial
remastered
CD
from tape
masters

FIG. 8A *optical dip FFT*

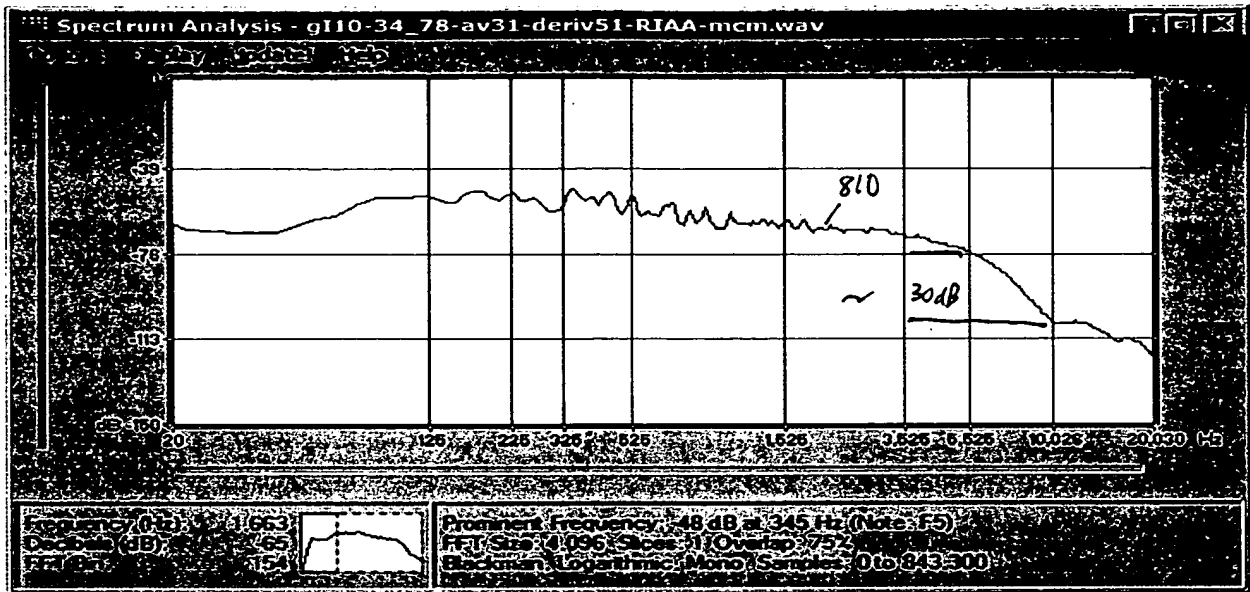


FIG. 8B *style phy back*

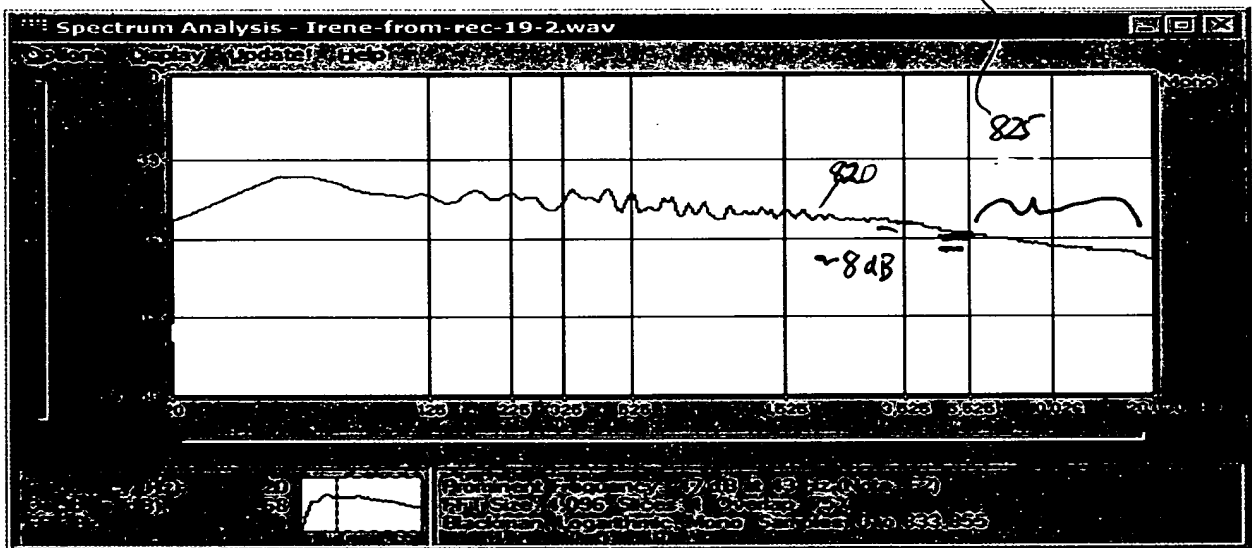


FIG. 8C CD remaster

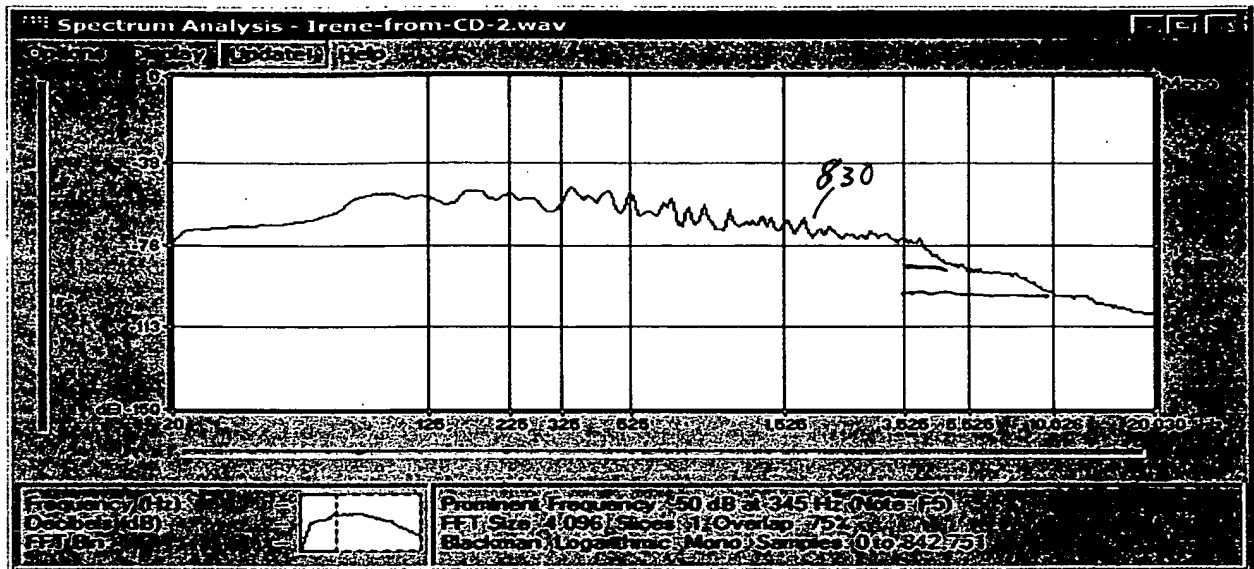


FIG. 9A,B

900

FIG. 9A

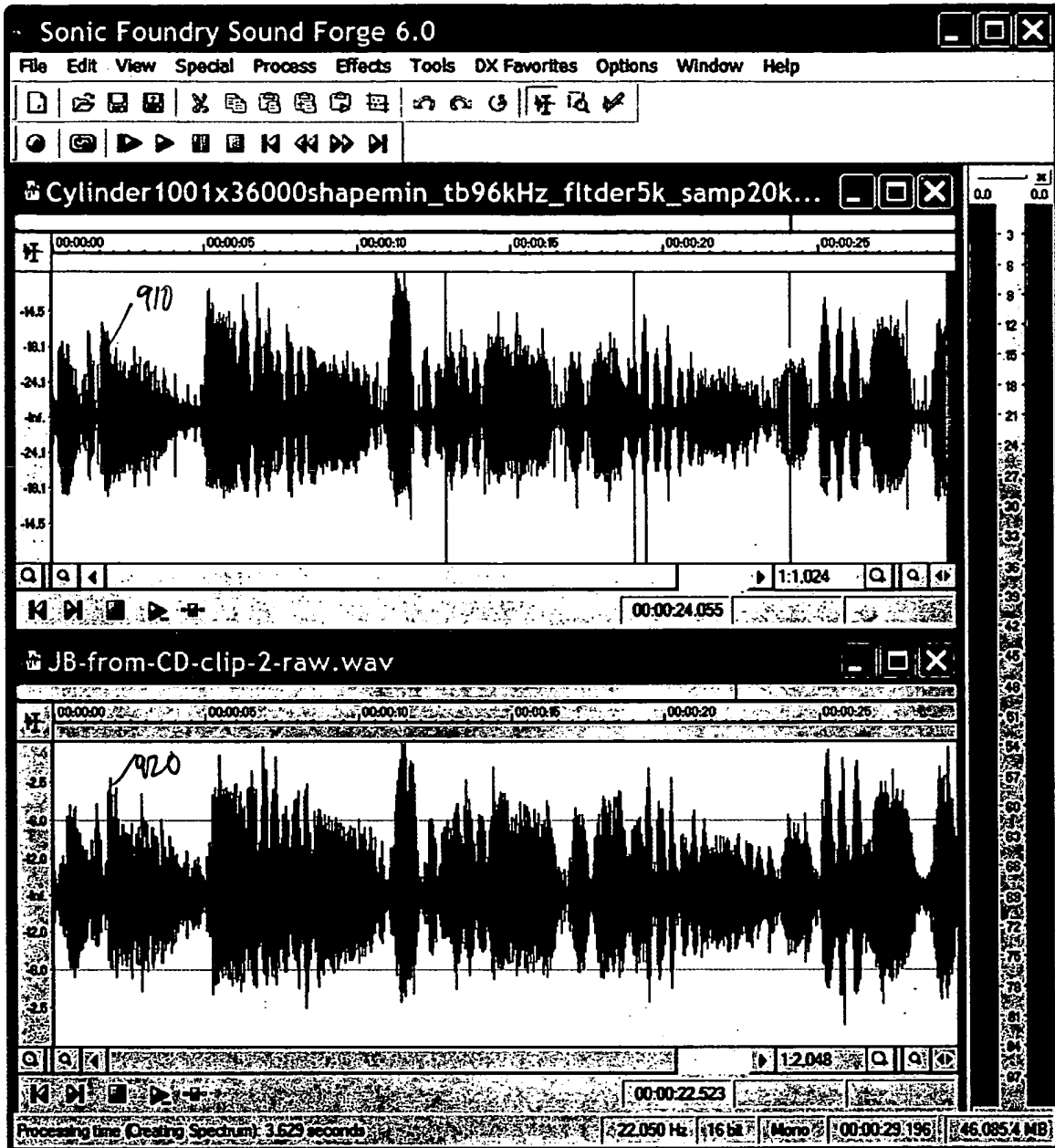


FIG. 9B

Sonic Foundry Sound Forge 6.0

File Edit View Special Process Effects Tools DX Favorites Options Window Help

Cylinder1001x36000shapemin_tb96kHz_fltder5k_samp20k...

00:00:11.260

00:00:11.055

JB-from-CD-clip-2-raw.wav

00:00:11.390 00:00:11.395 00:00:11.400

00:00:11.605

Processing time (Creating Spectrum): 3.629 seconds

44,100 Hz 16 bit Mono 00:00:29.442 46,085.0 MB

FIG. 11A,B

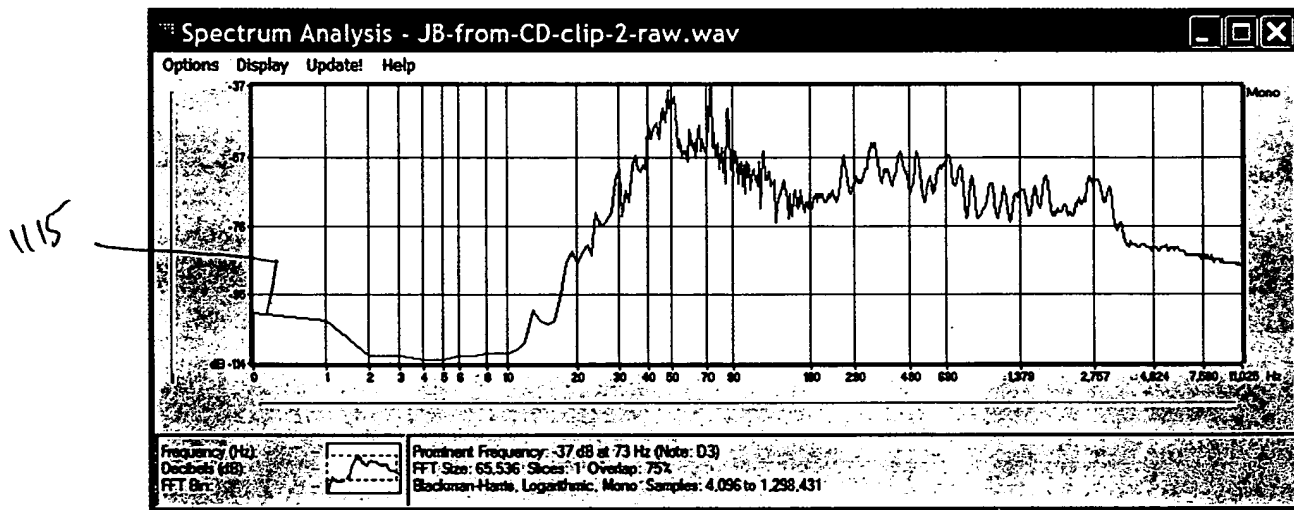
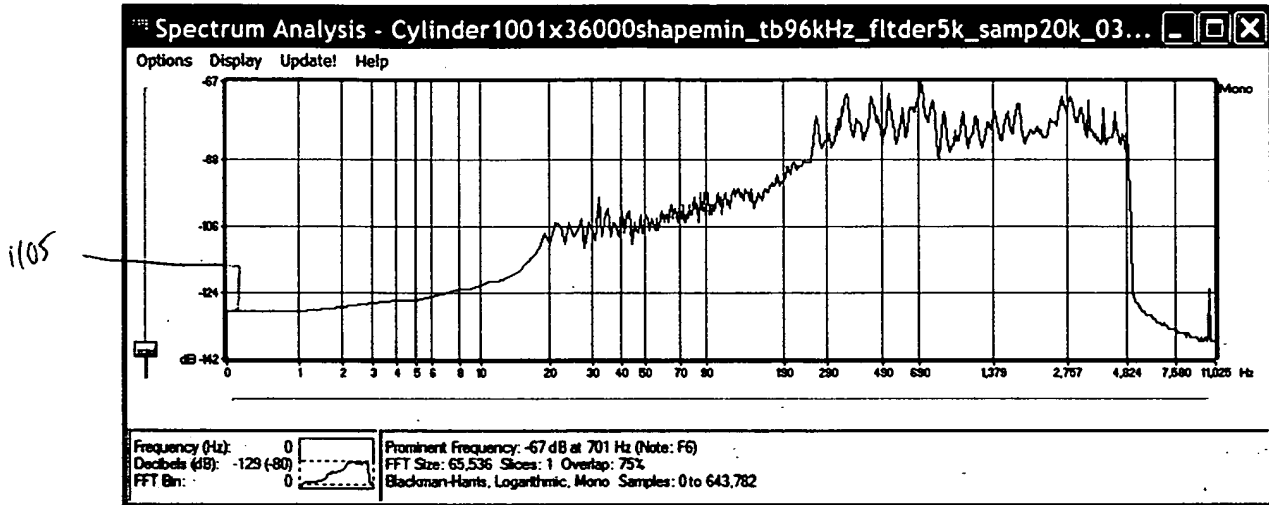


FIG. 12A

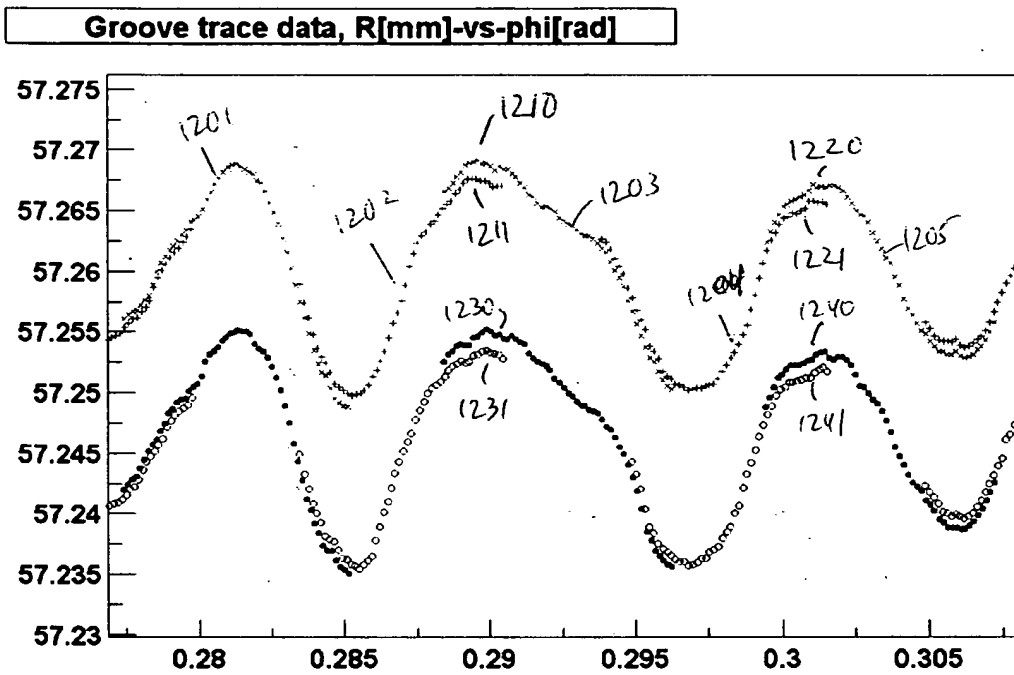


FIG. 12B

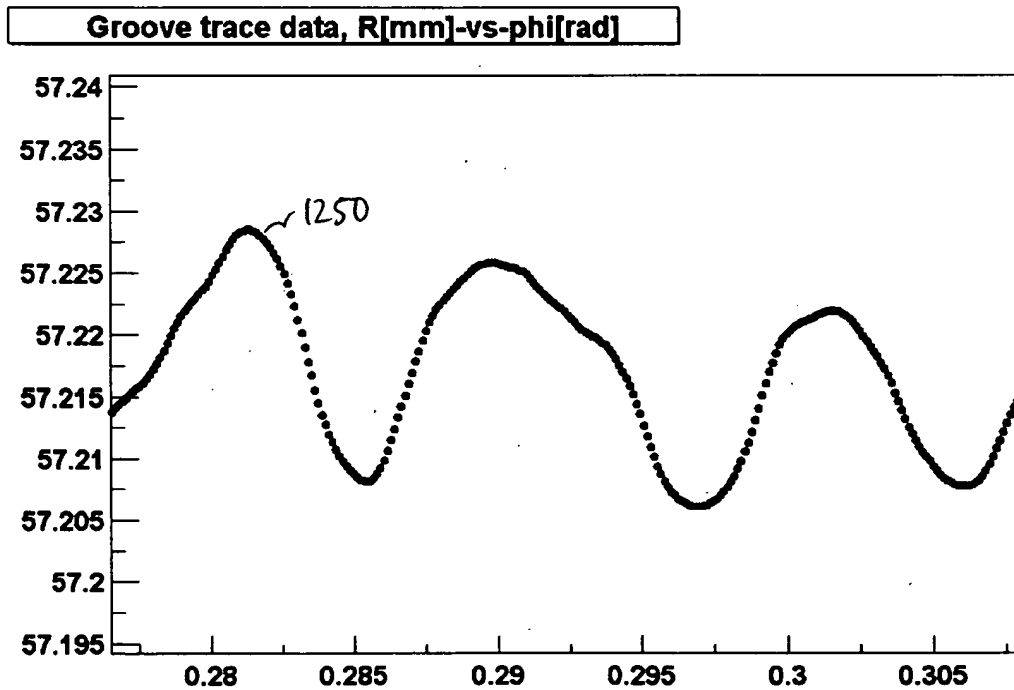


FIG. 12C

Groove trace data, dR/dT [mm/sec]-vs-time[sec]

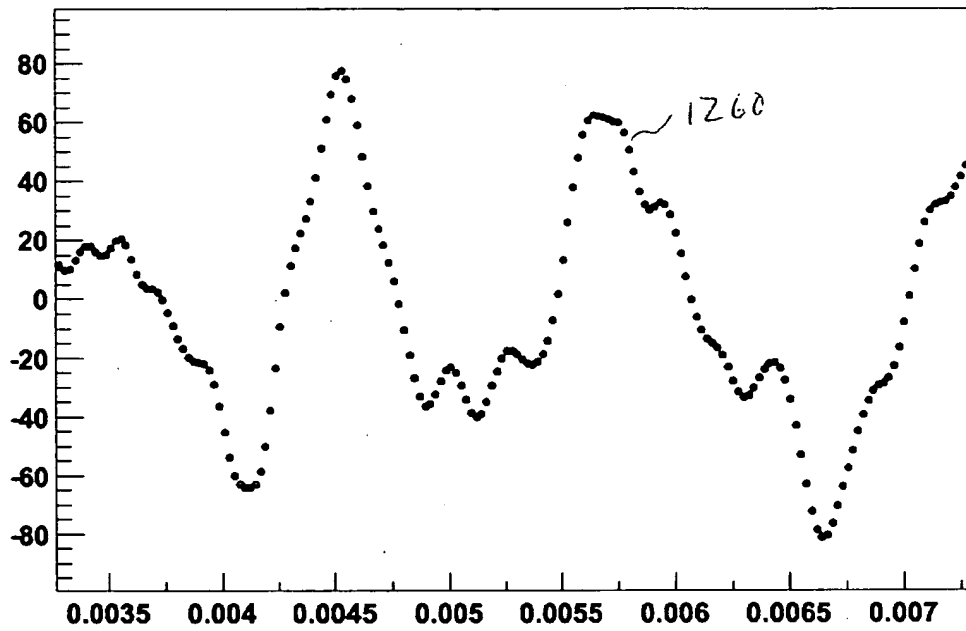


FIG. 13 A,B,C

